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**THE CEMENT
INDUSTRY
IN 1923**

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BUILDING CONTRACTS AWARDED

(as reported by the F. W. Dodge Co.)

27 Northeastern States

Average monthly awards in thousands of sq. ft.
(000 omitted)

Type of Construction	1919	1920	1921	1922
Business	9,240	6,870	5,437	8,138
Industrial	12,772	10,652	2,981	5,577
Residential	20,157	11,460	17,047	25,949
Educational	1,915	2,190	3,382	4,751
Hospitals and institutions	368	523	890	1,032
Public buildings	172	236	252	290
*Public Works	654	534	704	906
Social and recreational ...	1,265	1,030	1,456	1,626
Religious and memorial..	444	422	767	1,134
†Grand total	46,683	33,491	32,267	44,940

* Given in number of projects.

† Grand total includes military and naval buildings and miscellaneous in addition to the groups listed.

CEMENT INDUSTRY IS OPTIMISTIC FOR 1923

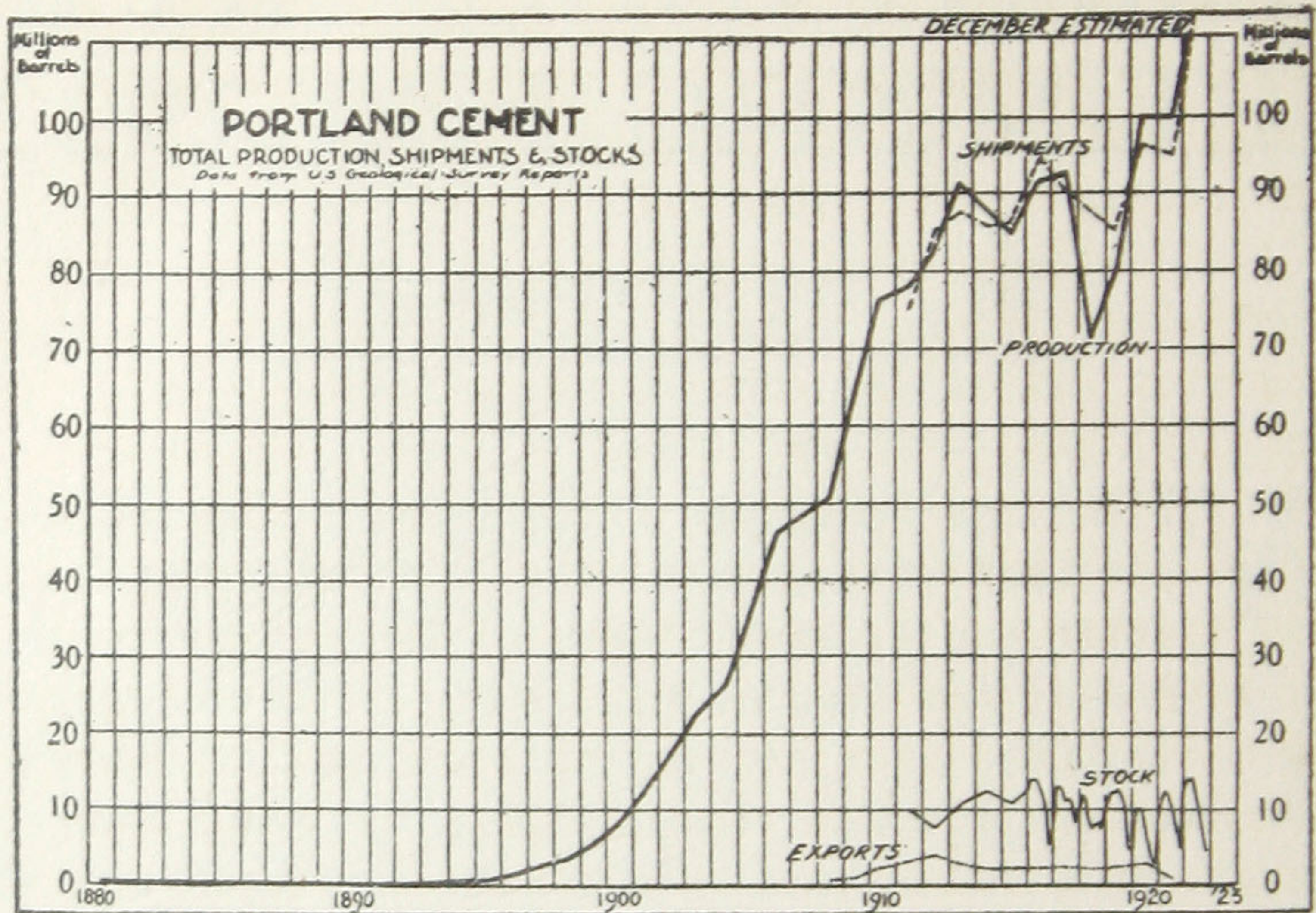
By JOHN R. MORRON

President The Atlas Portland Cement Company

WITH confident faith in the integrity, ability and constructive genius of the American people to meet the economic and political problems urgently pressing for solution and after careful analysis of reliable trade indices, I cannot look forward to 1923 with other than optimism for those engaged in the manufacture and sale of cement. This year has been one of gratifying expansion in demand, but a year of many harassments and unusual obstacles.

The fourth largest consumer of coal in the United States and the largest user of pulverized coal, the industry, which used 7,400,000 tons in 1921, is very dependent upon coal supply for production and the cost of manufacture. An increase of \$1 per ton for coal increases the cost of manufacture of cement 10c per barrel. For a time last Summer the cement mills were paying more per ton for coal than they received for their product. Despite the difficulties of coal supply and railroad car shortage, and embargoes which seriously hindered shipments, the industry has closed its banner year in volume with total shipments of more than 115,000,000 barrels. This is an increase of 20 per cent. over 1920, which was the former highest year's tonnage. This expansion is a growth that has been steady and (except for the war

CHART I.



period) continuous for the last twenty years, as Chart I shows. The beginning of the almost perpendicular rise which commenced about 1900 was simultaneous with the general adoption of the rotary kiln, which made for perfection of quality and economy of manufacture.

The last year's demand is not difficult of discernment. When those directing our energies in the war decided that construction and reconstruction were non-essentials, there began a damming-up process of delayed structural requirements that burst into activity so soon as restraint was removed. The housing problem became acute to the point of suffering until private home and home sheltering structures were built in feverish haste. There are those who contend that this crisis has been met and that the peak of home building has been passed. Rentals and building permits do not confirm this, and, until the high

rentals are materially reduced, capital will continue to flow into home and apartment building. The ratio between residential and other forms of construction may change, but, as home building slackens, industrial and commercial construction will increase.

The accompanying table gives for 1919 to 1922 the average monthly amount of contracts awarded for construction. After the great building boom of 1919 there was a considerable falling off in 1920, which was not reflected in cement shipments until 1921. That year was still slightly lower in square feet of building construction. The amount of contracts awarded for construction for the first eleven months of 1922 was 45 per cent. greater than the first eleven months of 1921 and 33 per cent. greater than the whole year of 1921. It would seem reasonable to presume that this extraordinary movement is not temporary but a reflection of an underbuilt condition of such extent that construction must proceed at this rate for some time to come in order to bring the nation to a point approaching normal.

It is not alone from structural building that the demand for cement will continue but also from those other fields of enterprise in which cement forms an integral part. Years ago kerosene was hailed as a beneficent by-product of crude oil. Today the thousands of extracts of crude oil, especially gasoline, have made the basic product a world necessity. So it has been with cement. The very foundation of the world's constructive development rests upon the permanence, safety and economy of that material. Just stop for a moment to think how varied are its uses—home, office, farm, railroads, canals, highways, sidewalks, viaducts, dams for irrigation and power, bridges, tunnels, subways, army and navy defense, sewers,

pavements, tiles and pipes, besides the thousands of smaller utilities and the artistic decorative beauty obtainable. It is from this ever-expanding field of usefulness that the great demand will arise and, unless all signs fail, the year 1923 will outstrip its predecessors in shipments. Yet the industry has more than kept ahead of all demands upon it and will continue to do so. The present production capacity of all cement mills is between 140,000,000 and 150,000,000 barrels annually, thus leaving a large margin between consumption and capacity.

Everywhere is evidence of national, municipal and industrial reconstruction and extension in which cement will be necessary. Only recently announcement was made of the proposed construction of a dam to harness the power of the river above Quebec and furnish 1,200,000 horsepower for light and power. School structures are still inadequate to meet the demands for the rudimentary education of our growing population. Cement highways have proved their merit and highway officials are planning increased mileage of that construction. The mileage of cement roads constructed annually has increased from 2,365 miles in 1919 to about 7,000 miles in 1922. At the end of this year there will be an uncompleted yardage under contract of about 35,000,000 square yards, equal to about 3,500 miles of an 18-foot roadway—more than all the concrete roads in the United States in 1917. The rail-transportation problem has become one of national welfare. The need of construction of maintenance and extensions, as well as lack of necessary terminal facilities, has reached a point where much work must soon be done. A transportation breakdown is unthinkable. New York and other cities must have new subways. State and municipal works for the protection of the health and welfare of the

public, and to provide it with those conveniences which modern civilization demand, are pressing for construction. Huge enterprises for water power and irrigation await the proper opportunity and there is before Congress the suggestion of appropriations for Federal office buildings throughout the land. Institutional buildings, hospitals, social, religious and recreational projects are contemplated. Modern forms of building are required to replace decayed and old-fashioned, unsafe structures. On every hand the signs of the time point toward cement with every increasing demand and indicate that the "Era of Cement" has arrived.

Both the manufacturer and the public have been inconvenienced heretofore by the seasonal character of cement construction. As storage of cement on account of its nature requires extremely well-built and expensive storage houses, distributors have provided themselves with only limited storage facilities. This results in a heavy concentration of cement shipments in the Summer months when outdoor work is more easily carried on. With the adverse traffic conditions that the country has suffered from in the last two years it has been extremely difficult and, at times impossible, to move the necessary tonnage to meet this Summer demand. The remedy for this congestion is a wider spread of the construction period, with earlier Spring and later Fall and Winter work and a more even distribution of purchases by dealers. The educational work of the Portland Cement Association in connection with safe methods of carrying on Winter construction in cement will result very advantageously to the public, in that the Summer peak of shipments may be kept from rising higher, thus avoiding higher prices and inabil-

ity to meet the Summer demand because of the limitations of transportation.

The public, through lack of understanding of the difficult and costly process of manufacture, has assumed that cement is only pulverized rock. The process from the time that the raw material is blasted out of the solid ledge rock to the time that it is delivered to the consumer, an accurately proportioned and dependable article, is a complicated and expensive one. It involves eight fine grindings of cement rock, limestone, coal and the incinerated combination. Two of these grindings, one of the raw materials and the other of the incinerated combination of them, is to such a fineness that the resulting powder may be passed through a screen of greater fineness than silk dress goods. The incineration of the raw material takes place at a temperature of about 3,000 degrees Fahrenheit, in a slowly revolving fire-brick-lined kiln from 150 to 240 feet long. Throughout continuous tests to insure uniformity of product and dependability are made.

Much of the result achieved in developing the cement industry and conducting scientific education and inspection has been due to the Portland Cement Association. Through this organization most of the cement companies cooperate for the conduct of research and experiments, maintaining laboratories to investigate new uses and to determine the best methods for cement and concrete construction. The findings are in each instance made public. For the purpose of spreading the results of this research and to educate the consumer the association maintains twenty-four offices throughout the country, employing 200 experienced engineers. The work includes direct inspection of construction in order to make sure that the con-

crete roads and street pavements for which the public's money is spent are properly constructed in accordance with the specifications and the best concrete practice. The outstanding example of this cooperative educational work is the rapid growth of the appreciation in the public's mind of the merits of the concrete road. In 1914 5,000,000 barrels of cement were used in this type of construction, in 1921 22,000,000 barrels, and in 1922 the total will be more than 25,000,000 barrels. The great value of the educational work of the Portland Cement Association was felt particularly during the two or three years immediately following the war, when most of our country's industries suffered loss and disastrous depression, while the production and shipments of cement continued in rather satisfactory volume.

So much misstatement has been forced upon public attention that it is but fair to point out some of the more glaring ones. When one reads or is informed that cement is selling for \$2.50 per barrel, it should not be accepted as the income received by the manufacturer. From the trade quotation must be deducted freight rate, bags and discount. With freight of say, 38 cents, four bags returnable at 10 cents each, and a discount of 10 cents, the manufacturer's price is reduced to \$1.62 per barrel, or \$8.10 per ton. The bags are returnable to the manufacturer at the price included in the quotation, at the present time 10 cents each, at which price they disappear from the trade through wear and tear and must be replaced at a price of 19 cents per bag. These bag losses amount in the aggregate to very large sums of money (more than \$3,000,000 in 1921 for nineteen Eastern companies).

According to the reports of the United States Geo-

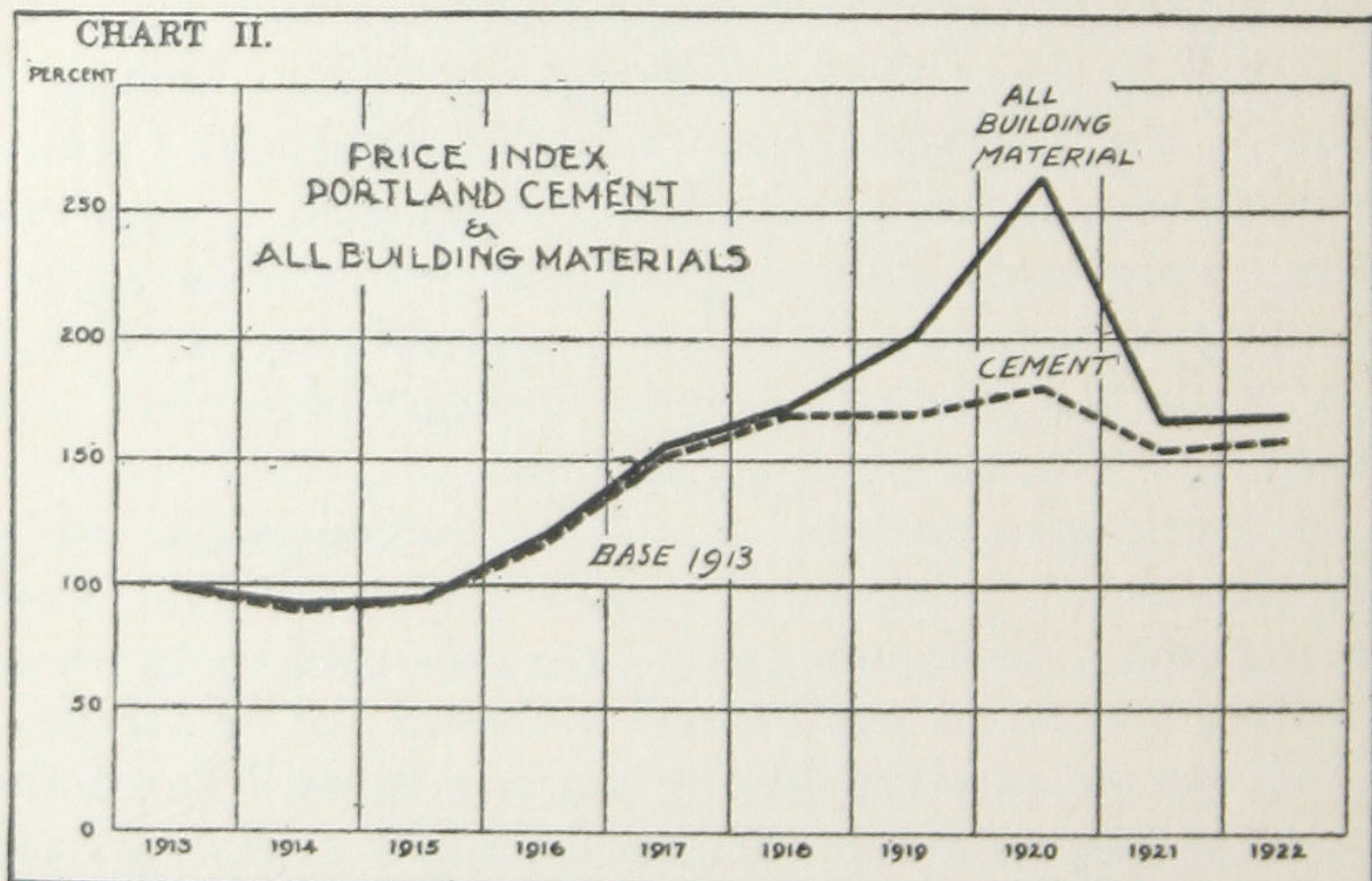
logical Survey the average prices received by the cement mills in the Lehigh Valley were:

\$1.64 per barrel in 1919, or \$8.20 per ton.

\$1.91 per barrel in 1920, or \$9.55 per ton.

\$1.78 per barrel in 1921, or \$8.90 per ton.

Thus, it is seen, that the highest average price was but \$9.55 per ton during the peak prices of 1920, and that price represents the highest average price received by the

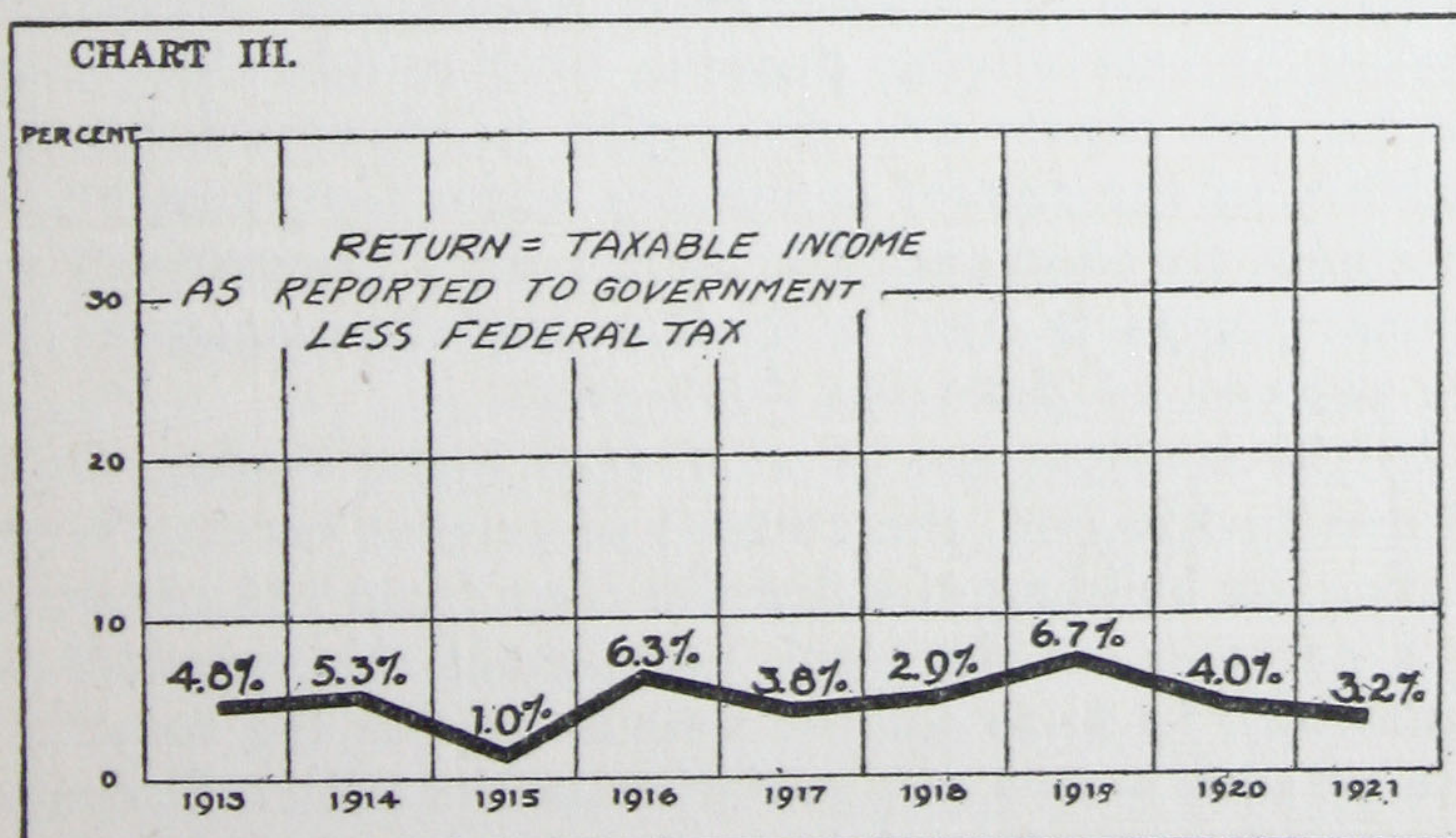


Price Index of Portland Cement Compared With That of All Building Materials-
Data for United States Government Reports.

Lehigh Valley Mills for the last decade. Chart II shows the index price of cement from 1913 to date, compared with the index price of other building materials for the same period, all of the data being taken from Government reports. The comparison acquits the cement industry of the charge of profiteering, and shows how little the price of cement followed the peak prices of other building materials.

A few individuals may have speculated in cement, but this speculation cannot assume any great proportions

on account of the small storage capacity available to distributors and the policies pursued by most of the companies in this respect. It has been misstated that the cement companies limit the amount a purchaser may buy. A buyer may purchase all of the cement that he wishes at the current price, provided he will accept delivery at once or within a very short period. In general, cement companies will not make a contract for the future delivery of cement at the price then prevailing. A notable exception is made to this policy in order to stabilize building cost; in that, a prospective builder or contractor may know when he starts a project what his cement will cost him throughout the life of that project; that is, a contract may be made at the present current price for future delivery for use on a specific piece of work. This is done with the expectation and in accordance with the terms of the contract that the cement so contracted for shall be used only in that work, so that none of it may get into speculative hands to the detriment of the public.



Percentage of Return on Invested Capital, as Reported to the Government by
Nineteen Eastern Cement Companies.

Unfortunately, abuses have entered into these contracts for specific work. Frequently purchasers, either through lack of information of the exact requirements of the prospective work or through an anxiety to be amply and safely covered on deliveries, sometimes make these contracts for an amount considerably in excess of the requirements of the work and even duplicate such contracts with more than one cement company. This introduces an element of uncertainty for the cement companies in that, with the multiplication of a great number of such cases, a company will sometimes consider that its product, or a large proportion of it has been sold, when, in fact, a large proportion of the amount of cement on contract for specific work will not be called for. If however, there has been an increase in the cost of manufacture, with a resulting increase in price, purchasers holding these overestimated or duplicate contracts at the former low price will, in many instances, order out the cement for other uses than the work specified and in violation of the terms of the contract. This means of speculation is guarded against as carefully as possible by the individual companies, but efforts are materially handicapped by the inability of the cement companies under Government restrictions to cooperate by means of a comparison of cement contracts filed with the several companies for the purpose of detecting duplicates.

In the construction of a modern home costing from \$8,000 to \$10,000, the amount of cement necessary, including the building of sidewalks costs from 1 1/2 per cent. to 2 per cent. of the total. In figures this amounts to from \$120 to \$200 for the cement used in the construction of such homes. A variation in the price of cement of 25 cents per barrel in the case of such a house is equivalent to only a day's pay to a plasterer or brick-

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per cent. before dividends on stock were paid. In 1920,
a year in which profiteering was at its height, these nine-
teen cement companies earned 4 per cent. on invested
capital, and certainly that shows no reflection of profiteer-
ing. When one considers the enormous amount of capital
required in this industry (\$2.50 for each barrel of annual
output) the expensive operation through which the
quarried rock must pass before it can be sold as a
standard quality to the consumer, the high labor and
coal costs, the exacting specifications, and the high quality
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all manufactured products.

I believe in the cement industry. I believe in its future,
and I believe in its honest administration and its efficient
management for the welfare of the nation and the in-
dividual. Its growth has not come from the rubbing of
an Aladdin's Lamp, but has resulted from energy, fore-
sight and scientific research. It renders service to in-
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well termed a "public service institution." I believe the
industry realizes and accepts its responsibility to provide
cement of the highest quality at the lowest price as a
duty toward national advancement, and that the industry
has been and will be conducted for the best interest of all.

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In the construction of a modern home costing from \$8,000 to \$10,000, the amount of cement necessary, including the building of sidewalks costs from 1½ per cent. to 2 per cent. of the total. In figures this amounts to from \$120 to \$200 for the cement used in the construction of such homes. A variation in the price of cement of 25 cents per barrel in the case of such a house is equivalent to only a day's pay to a plasterer or brick-

layer. Is it imaginable that construction of any home would be abandoned on account of a consideration so little affecting its total cost?

Chart III is full answer to the charge of undeserved profits. The most accurate basis from which earnings could be calculated is the reported income tax returns, and the reports to the Government of nineteen cement companies operating in the Northeastern States from 1912 to 1921 inclusive have been used for the lines shown. For the best year, 1919, the earnings were 6.7 per cent. before dividends on stock were paid. In 1920, a year in which profiteering was at its height, these nineteen cement companies earned 4 per cent. on invested capital, and certainly that shows no reflection of profiteering. When one considers the enormous amount of capital required in this industry (\$2.50 for each barrel of annual output) the expensive operation through which the quarried rock must pass before it can be sold as a standard quality to the consumer, the high labor and coal costs, the exacting specifications, and the high quality expected—the wonder is that cement is the cheapest of all manufactured products.

I believe in the cement industry. I believe in its future, and I believe in its honest administration and its efficient management for the welfare of the nation and the individual. Its growth has not come from the rubbing of an Aladdin's Lamp, but has resulted from energy, foresight and scientific research. It renders service to increase public security, health and prosperity. It might be well termed a "public service institution." I believe the industry realizes and accepts its responsibility to provide cement of the highest quality at the lowest price as a duty toward national advancement, and that the industry has been and will be conducted for the best interest of all.

